Acceptance or rejection of the null hypothesis economics essay

The appropriate value of t is 2. 100. Since we are concerned whether b (the slope of original regression line) is significantly different fro B (the hypothesized slope of population regression), this is a two tailed test, and the critical values are ±2. 100. The standardized regression coefficient is 0. 063, which is inside the acceptance region for our hypothesis test. Therefore, we accept null hypothesis that B is equal to 0. 01.

Step 6: Interpretation of the Result

There is not enough difference between b and 0. 01 for us to conclude that that B has changed from its historical value. Because of this, we feel that a one hundred percent increase in inflation would increase the poverty headcount by around 0. 01%, as it has in the past.

2. Inflation and Ginni Coefficient

The slope for the regression line that shows a relationship between inflation and gini coefficient is 0. 5956. This means that a 100% increase in inflation would result in 0. 5956% increase in gini coefficient. Now we would perform the same hypothesis testing procedure to determine the authenticity of slope and whether the slope justifies the relationship between inflation and gini coefficient.

Step 1: State the Null and the Alternative Hypothesis

Let B denotes the hypothesized slope of actual regression line, the value of the actual slope of regression line is b = 0. 5956. The first step is to find some value for B to compare with b= 0. 5956. Suppose that over an extended past period of time, the slope of the relationship between inflation

and gini coefficient was 0. 5. To test whether this is still the case, we could define the hypothesis as:

H0: B= 0. 50 (Null hypothesis)

H1: B â‰ 0. 50 (Alternative hypothesis)

Step 2: Decide on Significance Level and Degree of Freedom

Significance level Î± = 0. 05 and Degree of freedom (df) = n-2 = 19 – 2 = 17

Step 3: Find out Standard Error of b

Where

Sb = standard error of the regression coefficient

Se = standard error of estimate

Xi = values of the independent variable

X-Bar = mean of the values of the independent variable

n = number of the data points

Year

X

Y

X – X-Bar

(X-X-Bar)2

Y2

XY

1963-64

4. 19

38. 6

-2. 607368

6. 79837008

1489. 96

161. 734

1966-67

8. 58

35. 5

1. 7826316

3. 17777535

1260. 25

304. 59

1968-69

1. 58

33. 6

-5. 217368

27. 2209332

1128. 96

53. 088

1969-70

4. 12

33. 6

-2. 677368

7. 16830166

1128. 96

138. 432

1970-71

5. 71

33

-1. 087368

1. 18237008

1089

188. 43

1971-72

4. 69

34. 5

-2. 107368

4. 44100166

1190. 25

161. 805

1979-80

8. 33

37. 3

1. 5326316

2. 34895956

1391. 29

310. 709

1984-85

5. 67

36. 9

-1. 127368

1. 27095956

1361. 61

209. 223

1985-86

4. 35

35. 5

-2. 447368

5. 98961219

1260. 25

154. 425

1986-87

3. 6

34. 6

-3. 197368

10. 2231648

1197. 16

124. 56

1987-88

6. 29

34. 8

-0. 507368

0. 25742271

1211. 04

218. 892

1990-91

12. 66

40. 7

5. 8626316

34. 370449

1656. 49

515. 262

1992-93

9. 83

41

3. 0326316

9. 19685429

1681

403. 03

1993-94

11. 27

40

4. 4726316

20. 0044332

1600

450. 8

1996-97

11. 8

40

5. 0026316

25. 0263227

1600

472

1998-99

5. 74

41

-1. 057368

1. 11802798

1681

235. 34

2001-02

3. 54

27. 52

-3. 257368

10. 610449

757. 3504

97. 4208

2004-05

9. 28

29. 76

2. 4826316

6. 16345956

885. 6576

276. 1728

2005-06

7. 92

30. 18

1. 1226316

1. 26030166

910. 8324

239. 0256

Summation

129. 15

678. 06

0

177. 829168

24481. 06

4714. 9392

X-Bar = 6. 79

Y-Bar = 35. 68

Se = 3. 59

By putting Se and Summation (X-X-Bar) 2 in Sb, we have

Sb = 0. 269

Step 4: Find the Standardized Value of b

t = b – BH0/Sb

Where

b = slope of fitted regression

BH0 = actual hypothesized slope

Sb = standard error of the regression coefficient

By putting the values of the above in t, we have

t = 0. 355

Step 5: Conclusion on Acceptance or Rejection of the Null Hypothesis

The appropriate value of t is 2. 10. Since we are concerned whether b (the slope of original regression line) is significantly different from B (the hypothesized slope of population regression), this is a two tailed test, and the critical values are ±2. 10. The standardized regression coefficient is 0. 355, which is inside the acceptance region for our hypothesis test. Therefore, we accept null hypothesis that B is equal to 0. 5

Step 6: Interpretation of the Result

There is not enough difference between b and 0. 50 for us to conclude that that B has changed from its historical value. Because of this, we feel that a one hundred percent increase in inflation would result in an increase of 0. 50% in gini coefficient, as it has in the past.

Results

The R2 (pronounced as “ r squared”) of the regression line of inflation and headline poverty indicates that 0. 05% of the variability in headline poverty is explained by inflation. This is very low because if we see the other side the

coin which shows that 99. 95% of the variability in headline poverty is explained by the variables other than inflation. This shows that other factors significantly affect poverty more than that of inflation.

The R2 of the regression line of inflation and gini coefficient says that 22. 3% of the variability in gini coefficient is explained by inflation however 77. 7% of the time that variability is explained by other factors rather than inflation. Although this number is not that high but it is comparatively better than that of headcount poverty variability as explained by inflation.

The hypothesis testing also validates the results of regression analysis. In hypothesis testing we saw that the slope of the regression line was almost close to the hypothesized slope. In hypothesis as well as regression analysis we saw that an increase in inflation actually caused the headline poverty to increase also an increase in inflation resulted in an increase in gini coefficient. The changes caused by inflation both in the case of poverty headcount and gini coefficient were not significant. The changes were quite minimal and insignificant. Due to this reason, we reject H0 and conclude that the inflation does not significantly affect poverty level in Pakistan.

Concluding Remarks

Inflation plays an increasingly important role in our lives. The higher level of inflation erodes the purchasing power of every individual however the effect of that increase differs from one individual to another.

The fundamental purpose of this paper was to determine the impact of inflation of poverty headcount as represented by the total percentage of population living below poverty line and income inequality as represented by

ginni coefficient. The effect of inflation on income inequality or ginni coefficient was positive that means higher inflation resulted in more income inequality however the effect of inflation on poverty headcount was positive that is higher inflation resulted in higher poverty headcount.

The effect of inflation on income inequality indicated a realistic outcome because inflation in Pakistan had predominantly been fuelled by food which also takes a high weightage in consumer price index (CPI) of Pakistan. So the effects of higher inflation are more on poor people than that of non-poor ones. This in turn results in higher income inequality.